

**Notice of Allowability**

Application No.

10/774,642

Applicant(s)

PHILIPS ET AL.

Examiner

Lars A Olson

Art Unit

3617

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address--

All claims being allowable, PROSECUTION ON THE MERITS IS (OR REMAINS) CLOSED in this application. If not included herewith (or previously mailed), a Notice of Allowance (PTOL-85) or other appropriate communication will be mailed in due course. **THIS NOTICE OF ALLOWABILITY IS NOT A GRANT OF PATENT RIGHTS.** This application is subject to withdrawal from issue at the initiative of the Office or upon petition by the applicant. See 37 CFR 1.313 and MPEP 1308.

1. ☒ This communication is responsive to the amendment received from the applicant on February 8, 2005.
2. ☒ The allowed claim(s) is/are 7,8,11,13 and 14.
3. ☒ The drawings filed on 09 February 2004 are accepted by the Examiner.
4. ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
  - a) ☐ All b) ☐ Some\* c) ☐ None of the:
    1. ☐ Certified copies of the priority documents have been received.
    2. ☐ Certified copies of the priority documents have been received in Application No. \_\_\_\_\_.
    3. ☐ Copies of the certified copies of the priority documents have been received in this national stage application from the International Bureau (PCT Rule 17.2(a)).

\* Certified copies not received: \_\_\_\_\_.

Applicant has THREE MONTHS FROM THE "MAILING DATE" of this communication to file a reply complying with the requirements noted below. Failure to timely comply will result in ABANDONMENT of this application.

**THIS THREE-MONTH PERIOD IS NOT EXTENDABLE.**

5. ☐ A SUBSTITUTE OATH OR DECLARATION must be submitted. Note the attached EXAMINER'S AMENDMENT or NOTICE OF INFORMAL PATENT APPLICATION (PTO-152) which gives reason(s) why the oath or declaration is deficient.
  6. ☐ CORRECTED DRAWINGS (as "replacement sheets") must be submitted.
    - (a) ☐ including changes required by the Notice of Draftsperson's Patent Drawing Review (PTO-948) attached
      - 1) ☐ hereto or 2) ☐ to Paper No./Mail Date \_\_\_\_\_.
    - (b) ☐ including changes required by the attached Examiner's Amendment / Comment or in the Office action of Paper No./Mail Date \_\_\_\_\_.
- Identifying indicia such as the application number (see 37 CFR 1.84(c)) should be written on the drawings in the front (not the back) of each sheet. Replacement sheet(s) should be labeled as such in the header according to 37 CFR 1.121(d).
7. ☐ DEPOSIT OF and/or INFORMATION about the deposit of BIOLOGICAL MATERIAL must be submitted. Note the attached Examiner's comment regarding REQUIREMENT FOR THE DEPOSIT OF BIOLOGICAL MATERIAL.

**Attachment(s)**

1. ☒ Notice of References Cited (PTO-892)
2. ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
3. ☐ Information Disclosure Statements (PTO-1449 or PTO/SB/08),  
Paper No./Mail Date \_\_\_\_\_
4. ☐ Examiner's Comment Regarding Requirement for Deposit  
of Biological Material
5. ☐ Notice of Informal Patent Application (PTO-152)
6. ☐ Interview Summary (PTO-413),  
Paper No./Mail Date \_\_\_\_\_
7. ☐ Examiner's Amendment/Comment
8. ☒ Examiner's Statement of Reasons for Allowance
9. ☐ Other \_\_\_\_\_

### **Reasons for Allowance**

1. An amendment was received from the applicant on February 8, 2005.
2. Claims 1-6, 9, 10, 12 and 15-18 have been canceled.
3. Claims 7, 8, 11, 13 and 14 are allowed.
4. The following is an examiner's statement of reasons for allowance. The multi-hull vessel as claimed is not shown or suggested in the prior art because of the use of a vessel that is comprised of a main hull, at least two lateral hulls that are disposed on opposite sides of said main hull, a surface deck disposed between said lateral hulls, an engine that is mounted in said main hull, a plurality of microbubble injectors that are disposed in exterior subsurface areas of each of said lateral hulls, and a plurality of conduits that are in fluid communication with said engine and said microbubble injectors, where said microbubble injectors are further comprised of plates having an open area of 40 to 50%, said open area being defined by a plurality of apertures each having a diameter in the range of .0625 to .125 inches, and where said engine is capable of producing cooling air and exhaust with said conduits, and directs said cooling air and exhaust to said microbubble injectors to effect microbubble generation in order to reduce drag on said lateral hulls.
5. The prior art as disclosed by Wilson (US 3,191,572) shows the use of a multi-hull vessel that is comprised of a main hull, at least two lateral hulls that are disposed on opposite sides of said main hull, a surface deck, an engine, and a means for reducing drag on said lateral hulls in the form of a plurality of openings for introducing air bubbles

under pressure beneath said hulls of said vessel. Rizzo (US 4,393,802) discloses a vessel that is comprised of a hull, an engine, and a means for reducing drag on said hull in the form of a plurality of conduits that connect said engine with a plurality of exhaust ports in order to direct exhaust from said engine beneath said hull. Takahashi et al. (US 6,092,480) discloses a vessel that includes a plurality of microbubble injectors that are disposed on subsurface areas of the hull of said vessel in order to reduce skin friction on said hull of said vessel. Newly cited reference by Katz (US 6,356,816) discloses a means for reducing drag on marine vessels using an air injection system to produce microbubbles beneath the hull of a vessel. Newly cited reference by Hwang (US 5,803,410) discloses a means for reducing skin friction on a vessel by using plates having an open area of 4 to 31%, said open area defined by a plurality of apertures each having a diameter in the range of .00236 to .015 inches, through which air is blown in order to generate microbubbles that reduce friction and drag on the hull of said vessel. However, none of the prior art cited shows or suggests the use of a multi-hull vessel that is comprised of a main hull, at least two lateral hulls that are disposed on opposite sides of said main hull, a surface deck disposed between said lateral hulls, an engine that is mounted in said main hull, a plurality of microbubble injectors that are disposed in exterior subsurface areas of each of said lateral hulls, and a plurality of conduits that are in fluid communication with said engine and said microbubble injectors, where said microbubble injectors are further comprised of plates having an open area of 40 to 50%, said open area being defined by a plurality of apertures each having a diameter in the range of .0625 to .125 inches, and where said engine is

capable of producing cooling air and exhaust with said conduits, and directs said cooling air and exhaust to said microbubble injectors to effect microbubble generation in order to reduce drag on said lateral hulls.

**Conclusion**

6. Any comments considered necessary by applicant must be submitted no later than the payment of the issue fee and, to avoid processing delays, should preferably accompany the issue fee. Such submissions should be clearly labeled "Comments on Statement of Reasons for Allowance."
7. Any inquiry concerning this communication from the examiner should be directed to Exr. Lars Olson whose telephone number is (703) 308-9807.

lo

March 7, 2005

**LARS A. OLSON  
PRIMARY EXAMINER**

*Lars Olson*

*3/7/05*